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N<sup>o</sup> 7163



A.D. 1906

Date of Application, 24th Mar., 1906

Complete Specification Left, 24th Oct., 1906—Accepted, 14th Mar., 1907

### PROVISIONAL SPECIFICATION.

#### Improvements in or relating to Cushioning Means for Boots, Shoes and the like.

I, ARTHUR FRANCIS BERRY, of 27 Woodville Road, Ealing, in the County of Middlesex, Electrical Engineer, do hereby declare the nature of this invention to be as follows:—

This invention has for object to provide the heel portion of a boot, shoe, slipper or the like (hereinafter called a boot) with elastic or yielding cushioning means that can be readily put in place for use and which will afford considerable comfort to the wearer by reducing concussion or shock between the heel of the boot and the heel of the wearer whilst walking.

In cushioning means according thereto there are a number of elastic or yielding cushioning bodies arranged side by side for use between the upper side of the heel portion of a boot and the lower side of a layer or covering of suitable material, for example leather, india-rubber, cork or fabric, that is adapted to bear upon the cushioning bodies and also upon the insole of the boot at a part thereof beyond the cushioning devices, and is hereinafter called for distinction, a supplementary insole, the cushioning bodies when in use being held partly within one or more recesses or cavities formed in the upper side of the heel portion of the boot. The arrangement is such that the supplementary insole will normally be supported by the cushioning bodies above the solid upper portion of the boot heel and form an elastic bearing or support for the heel of the wearer. The supplementary insole may be adapted to come into contact with and bear upon the solid portion of the boot heel around the cushioning bodies when the latter are subject to undue compression produced by shock such as may arise when jumping.

The cushioning bodies may advantageously consist of a number of pneumatic balls formed of india rubber charged with air at the ordinary atmospheric pressure, or at a greater pressure. Such bodies may be suitably fixed to the underside of the supplementary insole, as by a cement, so that the cushioning device comprising the cushioning bodies and supplementary insole, will constitute a single article that can be readily put in place in a boot or removed, so as to admit of its being easily changed from one boot to another, as may be desired. Conveniently, there may be seven balls of equal diameter, of which one is arranged centrally with the others arranged close together in an annular row around it. The cushioning bodies instead of being in the form of balls may be in other forms; they may, for example, be in the form of cheese or barrel shape hollow bodies. Also, instead of the cushioning bodies being hollow, they may, in some cases, be solid, so as to form elastic or yielding pads.

The upper side of the heel portion of a boot to which a cushioning device such as described is to be applied, may be formed with a single shallow circular recess to partly receive and hold the cushioning bodies, or with a number of shallow recesses each adapted to partly receive and hold one of the cushioning bodies. Such a recess or recesses can be readily formed in existing boots by a suitable cutting tool. The underside of the rear portion of the supplementary insole, or that portion thereof against which the cushioning bodies bear, may

[Price 8d.]

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be recessed or formed with a downwardly extending rim or part, or with a series of projections, adapted to bear against the upper side of the heel portion of a boot when the cushioning bodies are subjected to undue pressure and thereby prevent their being injured. The forward portion of the supplementary insole is or may be bevelled so as to terminate flush with the ordinary insole at a part thereof between the heel and sole, viz., over the waist of the boot. In some cases, however, the supplementary insole may extend, like an ordinary boot sock, over the whole of the ordinary insole.

A cushioning device comprising cushioning bodies and supplementary insole when attached together to form a single article, may sometimes be used in a boot unprovided with a recess or recesses for the said cushioning bodies.

Sometimes, the cushioning bodies may be arranged between and be fixed to upper and lower supplementary insoles that may be cupped, to hold the cushioning bodies in place and to limit the degree of compression thereof.

The supplementary insole or insoles, at the part thereof in front of the cushioning bodies, may be made of wedge shape in longitudinal section, or be provided with a wedge shaped filling or bearing piece that may be hollow or not, as may be desired.

The details of construction can be varied.

Dated this 24th day of March 1906.

For the Applicant,

W. LLOYD WISE,  
46 Lincoln's Inn Fields, London, W.C.  
Chartered Patent Agent.

## COMPLETE SPECIFICATION.

*Improvements in or relating to Cushioning Means for Boots, Shoes and the like.*

I, ARTHUR FRANCIS BERRY, of 27 Woodville Road, Ealing, in the County of Middlesex, Electrical Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention has reference to that kind of cushioning means for reducing concussion or shock wherein there is provided within a boot, shoe, slipper or the like (hereinafter called a boot) an elastic cushion or heel pad provided on its underside with rubber projections arranged to come between the heel of the wearer while walking and the heel portion of the boot, and it has for object to provide improved arrangements of elastic cushioning means that can be readily put into place for use and are designed to afford greater comfort to the wearer, than with arrangements hitherto proposed.

In cushioning means according thereto there are a number of elastic cushioning bodies of equal or about equal height arranged side by side for use between the upper side of the heel portion of a boot and the lower side of a layer or covering of suitable material—for example leather, india-rubber, cork, or fabric—that is adapted to bear upon the cushioning bodies and also upon the insole of the boot at a part thereof beyond the cushioning bodies, and is hereinafter called for distinction a supplementary insole, the cushioning bodies when in use being held partly within one or more shallow recesses or cavities having a rigid side wall or walls formed in the upper side of the heel portion

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of the boot. The arrangement is such that the supplementary insole will normally be supported by the cushioning bodies above the solid upper portion of the boot heel and form an elastic bearing or support for the heel of the wearer. The supplementary insole may be adapted to come into contact with and bear upon the solid portion of the boot heel around the cushioning bodies to prevent the latter from being subject to undue compression produced by shock such as may arise when jumping.

The cushioning bodies may advantageously consist of a number of pneumatic balls formed of india rubber charged with air at the ordinary atmospheric pressure, or at a greater pressure. Such bodies may be suitably fixed to the underside of the supplementary insole, as by a cement, so that the cushioning device comprising the cushioning bodies and the supplementary insole will constitute a single article that can be readily put into place in a boot or removed, so as to admit of its being easily changed from one boot to another, as may be desired. Conveniently, there may be seven balls of equal diameter, of which one is arranged centrally with the others arranged close together in an annular row around it. The cushioning bodies, instead of being in the form of balls, may be in other forms; they may, for example, be in the form of cheese or barrel shaped hollow bodies. Also, instead of being hollow, the cushioning bodies may, in some cases, be solid, so as to form elastic pads.

The upper side of the heel portion of a boot to which a cushioning device such as described is to be applied, is formed with a single shallow circular recess to receive partly and hold the cushioning bodies, or with a number of shallow recesses each adapted to receive partly and hold one of the cushioning bodies. Such a recess or recesses can be readily formed in existing boots by a suitable cutting tool. The underside of the rear portion of the supplementary insole, or that portion thereof against which the cushioning bodies bear, may be recessed or provided with a downwardly extending rim or part, or with a series of projections, so as to be adapted to bear against the upper side of the heel portion of a boot when the cushioning bodies are subjected to undue pressure and thereby to prevent their being injured. The forward portion of the supplementary insole is or may be bevelled so as to terminate flush with the ordinary insole at a part thereof between the heel and the sole—namely over the waist of the boot. In some cases, however, the supplementary insole may extend, like an ordinary boot sock, over the whole of the ordinary insole. The arrangement in each case is such that when the cushioning device is in use, it will be prevented from slipping forward by the recess or recesses in the boot, or by the pressure of the foot of the wearer, or by the boot itself.

A cushioning device comprising cushioning bodies arranged between and fixed to upper and lower supplementary insoles that are recessed to hold the cushioning bodies in place and it may be to limit the degree of compression thereof when attached together to form a single article, may sometimes be used in a boot the heel of which is unprovided with a recess or recesses for the said cushioning bodies.

Sometimes, the cushioning bodies may be arranged between and be fixed to upper and lower supplementary insoles that may be cupped, to hold the cushioning bodies in place and, it may be, to limit the degree of compression thereof.

The supplementary insole or insoles, at the part thereof in front of the cushioning bodies, may be made of wedge shape in longitudinal section, or be provided with a wedge shaped filling or bearing piece that may be hollow or not, as may be desired.

The details of construction can be varied.

The invention is illustrated by the accompanying drawings which show several examples of cushioning means according thereto.

Fig. 1 shows in longitudinal vertical section, part of a boot provided with one example of cushioning means, and Fig. 2 is a plan of the cushioning device

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shown in Fig. 1. In the example shown in Figs. 1 and 2 the cushioning bodies are pneumatic balls *a* which are suitably attached, as by cement, to the underside of a supplementary insole *b* so that the cushioning bodies *a* and the supplementary insole *b* constitute a single article that can be easily removed from one boot to another as desired. Seven balls *a* of equal diameter are, in the example, provided, one of the balls being arranged centrally and the others in an annular row around it as shown in Fig. 2. A similar arrangement of smaller balls, say nineteen in number, may be used. The upper side of the heel portion *c* of the boot is formed with a single shallow circular recess *d* which is adapted to receive the bodies *a* partly and hold them in position when they are compressed. The underside of the rear portion *b*<sup>1</sup> of the supplementary insole *b* against which the bodies *a* bear is recessed, as shown at *b*<sup>2</sup>, so that a portion of each of the balls *a* is received in the recess *b*<sup>2</sup>, and the portion of the supplementary insole *b* around the recess *b*<sup>2</sup> will bear against the upper side of the heel portion before the balls *a* are subjected to undue pressure and will so prevent them from being injured in the case of shock. The forward portion *b*<sup>3</sup> of the supplementary insole *b* is bevelled or made of wedge shape so as to terminate flush with the ordinary insole *h* at the waist *k* of the boot.

Fig. 3 is a vertical sectional view representing an example wherein the balls *a*, instead of being all located in a single recess *d* in the heel portion *c*, are each located in a recess *e* therein. In the example shown in Fig. 3 the rear portion *b*<sup>1</sup> of the supplementary insole *b* is provided with a downwardly extending ring *f* adapted to bear against the upper side of the heel portion to prevent undue compression of the balls *a*.

Figs. 4, 5 and 6 show examples of cushioning devices in which the cushioning bodies *a* are respectively cheese-shaped, barrel-shaped, and cylindrical.

Fig. 7 shows an example in which a supplementary insole *b* is provided with downwardly extending projections *g* adapted to come into contact with the upper surface of the heel portion and so to prevent the balls *a* from being unduly compressed.

Figs. 8 and 9 represent in longitudinal section examples in which the cushioning bodies *a* are arranged between and fixed to upper and lower supplementary insoles *m* and *n* that are recessed to hold the cushioning bodies *a* in place.

In the example shown in Fig. 8 the supplementary insoles *m* and *n* at the parts thereof in front of the cushioning bodies *a* are made of wedge shape in longitudinal section to meet the ordinary insole *h* (Figs. 1 and 3). In the example shown in Fig. 9 a wedge shaped hollow filling piece *o* is inserted between the two supplementary insoles *m* and *n*.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A boot, the heel portion of which has one or more comparatively shallow recesses with a rigid side wall or walls formed in its upper side and is provided with a number of pneumatic or other elastic cushioning bodies of equal or about equal height arranged side by side between the upper side of the said heel portion and the lower side of a supplementary insole and engaging in the said recess or recesses so as to be held partly therein when in use.
2. A cushioning device for a boot, comprising a supplementary insole adapted to be held in place longitudinally in the boot when in use therein, and a number of pneumatic or other cushioning bodies arranged side by side and attached to the supplementary insole so as to be adapted when the device is inserted into the boot to be between the supplementary insole and the upper side of the heel portion of the boot, one of the said cushioning bodies being arranged centrally with the other around and in contact therewith.

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3. Boot cushioning means according to either of the preceding claims wherein the supplementary insole is adapted to come into contact with the solid portion of the boot heel around the cushioning bodies before the latter are subject to undue compression.

4. Boot cushioning means according to Claim 3 wherein the underside of the rear portion of the supplementary insole and the upper side of the heel portion of the boot are adapted, as by recessing the former or providing it with a downwardly extending rim or part, or with a series of projections, to bear against each other to prevent the cushioning bodies from being subjected to undue pressure.

5. A boot cushioning device according to Claim 2 wherein the cushioning bodies are arranged between and fixed to upper and lower supplementary insoles that are preferably cupped so as to hold the cushioning bodies in place.

6. A boot cushioning device of the kind referred to in the preceding claim wherein the cushioning devices are arranged between upper and lower supplementary insoles that are recessed to hold the cushioning bodies in place, the part or parts of the insoles in front of the cushioning bodies, being of wedge shape in longitudinal section, or provided with a wedge shaped hollow or other filling piece.

7. The several boot cushioning means according to the preceding claims constructed as hereinbefore described with reference to and illustrated respectively by Figs. 1 and 2, by Fig. 3, by Fig. 4, by Fig. 5, by Fig. 6, by Fig. 7, by Fig. 8, and by Fig. 9 of the accompanying drawings.

Dated this 24th day of October 1906.

For the Applicant,

W. LLOYD WISE,  
46 Lincoln's Inn Fields, London, W.C.  
Chartered Patent Agent.

# Heels / Intestinal Cushioning

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BERRY'S COMPLETE SPECIFICATION.

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